

MANAGEMENT OF GASTRO ESOPHAGEAL REFLUX DISEASE (GERD-TABKHEER-I-MEDA) AND UNANI CONCEPTS- A REVIEW ARTICLE

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ABSTRACT

Tabkheer-i-meda has been described as reflux of acid from stomach in the Unani classical literatures. This disease is characterized by various symptoms like indigestion, pain in abdomen, suppression of thrust, burning sensation in the epigastrium, anorexia, nausea and acid reflux etc. In modern medicine, Gastro-esophageal Reflux Disease is defined as symptoms or mucosal damage produced by the abnormal reflux of gastric contents into the esophagus or beyond, into the oral cavity (including larynx) or lungs. Traditional Herbal Medicines have been used for gastroesophageal reflux disease for a long time, but clinical evidence is still scarce. We evaluated different Traditional Herbal Medicines prescriptions for GERD in adults. In this article aruthor summarized the basic concept of GRED and its prevention and management in Unani system of medicine.

KEYWORDS: Gastro-esophageal Reflux Disease, Tabkheer-i-meda, Prevention and management and herbal drugs for its treatment.

INTRODUCTION, HISTORY AND BACKGROUND TABKHEER-I-MEDA (GERD)

Gastro-esophageal Reflux Disease is a new term in this era, classical literature does not give the description of term on one hand, but the clinical features mentioned under the headings of sue hazm (Dyspepsia), bad hazmi (Indigestion), Hazm-ki-khraabi (Digestion disorder) in various books correspond with the signs and symptoms of GERD. Some scholars described the term Zauf-e-meda, Zauf-e-Hazm, Sue-Hazm (Dyspepsia) and Tuhma (Indigestion) in agglomeration, in which deleterious effects occur in the process of digestion of food. Food particles remain in the stomach and become the cause of nausea, abdominal pain, vomiting, belching, flatulence, water brash, heartburn, etc. Its common causes include malfunctioning of the stomach, the diet

has taken disproportionately, and food particles are not chewed congruously. While alcohol, tobacco, tea, coffee, ice cubes etc if taken in inadequate amount may be its rare causes. Sometimes, it occurs due to heavy physical and mental work, anxiety and depression. Unani scholars have been treating this disease since ages. A large number of single and compound drugs have been documented for their efficacy in heartburn, regurgitation, dyspepsia, etc. This unani formulation contains various ingredients like heel kalaan (Amomum subulatum), tabaasheer (Bambusa arundinacea), kishneez khusk (Coriandrum sativum), gul-e-surkh (Rosa damascene) and baadiyaan (Foeniculum vulgare) all in equal amount. It is mainly used as Dafa e humoozat e meda. So present case series was carried out with the aim to explore the effect of this unani formulation on patients with GERD.

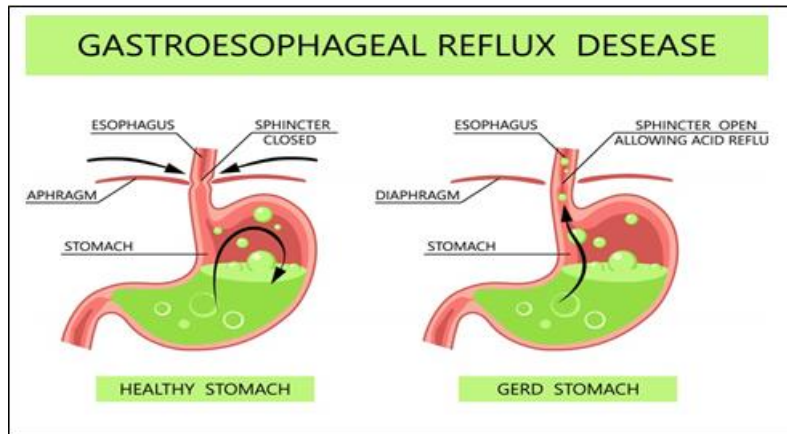


Fig. 1: Anatomy of Stomach in GERD.

Nafkh al-Mi'da, Tabkheer-i-Meda, Tukhma, Su'al-Hadm, Du'f al-Hadm, Fasad al-Hadm, Hurqa al-Mi'daand Waja'al-Fu'adterms are used for acidic reflux from stomach in the ancient Unani classic literatures. Pain of the cardiac end of stomach is felt on the anterior chest or upper abdomen. The acid reflux is called Gastroesophageal reflux or GER.

Al-Tibri in his book *Firdos-al-Hikmat fit Tib* state that the temperament of the esophagus is "Cold anddry". The stomach is the most sensitive internal organ of the body even from heart and liver therefore the stomach pain cause mental pressure that ultimately cause insanity. The lack of appetite is the result of if increased level of hotness in the stomach and increased appetite with slow digestive process refers that the temperament of the stomach goes towards the coldness. He also prescribed gastro esophagealreflux disease as "it is muscular disorders of the esophagus in which the tonicity of the muscles that controls the esophageal sphincter decreases and they remain relax, as a result the sphincter remainsopen".

I. Gastro Esophageal Reflux DiseaseMechanism

Gastro esophageal reflux is a physiological action that consists of unwilling expulsion of stomach contents in the esophagus that causes heart burn. It is a common practice characterized by heart burn, acid regurgitation and with or without mucosal damage. The mechanism of acid reflux has prescribed in Figure. When food particles along with gastric juice havingacidic pH reflux into the esophagus heart burn is developed. It happened due to the epithelial tissue lining that differs in esophagus than stomach, not suitable for the acidic environment. Endo-scopically it can be defined that which type of the material is present in the esophagus. Jhonsson *et al* prescribed, usually it considered that gastro esophageal reflux disease related heart burn is caused by the acid reflux but studies shows that the cause of the intra-esophageal stimulus is notonly acid reflux. It may be developed by the non-acidic stimuli that consist of increased volume dueto over eating, non-acidic reflux or esophageal motor dysfunction etc. Hence the myth "no acid, no heart burn" should be discarded, because acid reflux is not the only cause but one of the causes.

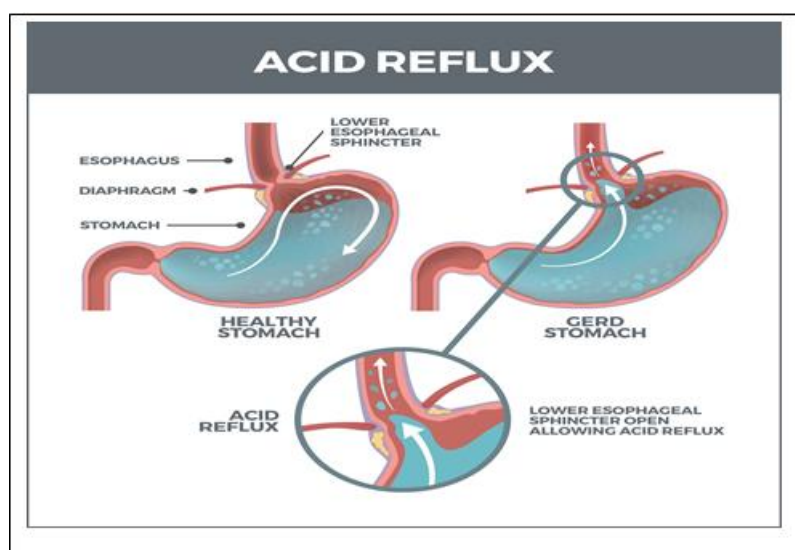


Fig. 2: Acid reflux during GERD.

II. Gastro Esophageal Reflux Disease Manifestations

The different manifestations of gastro esophageal reflux disease are shown in the Figure 5. Initially the lower esophageal sphincter starts relaxing

- (a) In the case when the esophageal sphincter closes strictly instead of relaxing
- (b) Patches developed in the esophageal walls
- (c) The indication of the mucosal damage of esophageal sphincter
- (d) Relax sphincter along with the patches of esophageal wall
- (e) A big ulcerative patch in the wall of esophagus
- (f) Relaxed sphincter with carcinoma
- (g) Carcinoma causing complete contraction of the sphincter
- (h) The complete gastro esophageal reflux disease along with carcinoma and severe mucosal damage.

In the world over both developed and developing countries, esophageal reflux is a common condition with different sign and symptoms but increasing rapidly around the globe. Gastro esophageal reflux disease is not only the disease of the adults but it is also common in children. Pediatric gastro esophageal reflux clinical practice guidelines have been issued by Vendenplas Y. A. compromise on the gastro esophageal reflux and gastro esophageal reflux disease's diagnosis and treatment in the children are suggested that could be gainfully utilized for the diagnosis and treatment. These guidelines based on the literature search available evidence and bibliographies. This study reviews 600 plus articles. The evidence-based information provides guidelines for diagnosis and treatment of gastro esophageal reflux and gastro esophageal reflux disease in the children. The patients having gastro esophageal reflux disease under the age of 12 years do not have heart burn while they have the symptoms of swallow difficulty, asthma and dry cough. Jiang and co-workers reported an analysis on the role of proximal gastric acid reflux in causation of respiratory symptoms in children with gastro esophageal reflux. The correlation of gastric reflux and respiratory diseases is known but the mechanism of the two bringing the reflux activity is not clear. A 24-hour esophageal pH monitoring of proximal and distal esophagus was observed in 23 and 31 children having gastric reflux with or without respiratory problems to find the onset. No significant differences in pH factors noted either in the proximal or distal esophagus in patients with gastric reflux without breathing. The proportion of patients with proximal gastric reflux in patients with respiratory symptoms was same from those without respiratory symptoms. Ultimately the proximal esophageal acid reflux has no role in the increase or decrease of persistent respiratory symptoms in children. The distal esophageal acid reflux is the predominant form of reflux in children with gastric reflux irrespective of the frequency of respiratory symptoms and dependent on its own systemic disorders.

Reflux patient's studies shows that the gastro esophageal reflux disease and age, both are the factors that have their effect on esophageal motility. The rate of peristaltic wave amplitude is significantly low as compared to non-gastro esophageal reflux disease patients and the ratio mimics in the old and young age. While Dantas and associates supports esophageal wave amplitude progressive reduction but denies the age factor. Jayadevappa and associates analyzed the gastro esophageal acid-related disease, co-morbidity and medical care cost a retrospective cohort research which was carried out on six hundred patients with gastro esophageal reflux disease were randomly assigned and 600 patients without gastro esophageal reflux disease were assigned for age, gender, drug efficacy. The demographics, medical health care was assessed from organization for 3 years demographically were compared between gastro esophageal reflux disease and non gastro esophageal reflux disease group. Random coefficient log linear regression models analyzed vis a vis costs and to determine its relationship with all type diagnoses. Gastro esophageal reflux disease is a chronic disease that is mixed with forms of disorders and diagnoses that significantly treatment is low costs is high without gastro esophageal reflux disease. Therefore in ultimate analysis new disease in the diseases with gastro esophageal reflux will cost more in health care.

III. Symptom of Tabkheer-i-meda (GERD)

The disease is characterized by various symptoms like indigestion, pain in abdomen, suppression of thrust, burning sensation in the epigastrium, anorexia, nausea and acid reflux etc. In modern medicine, Gastro-esophageal reflux disease (GERD) is defined as symptoms or mucosal damage produced by the abnormal reflux of gastric contents into the esophagus or beyond into the oral cavity (including larynx) or lungs. It occurs when the upper portion of the digestive tract does not function properly, causing stomach contents to flow back into the esophagus.

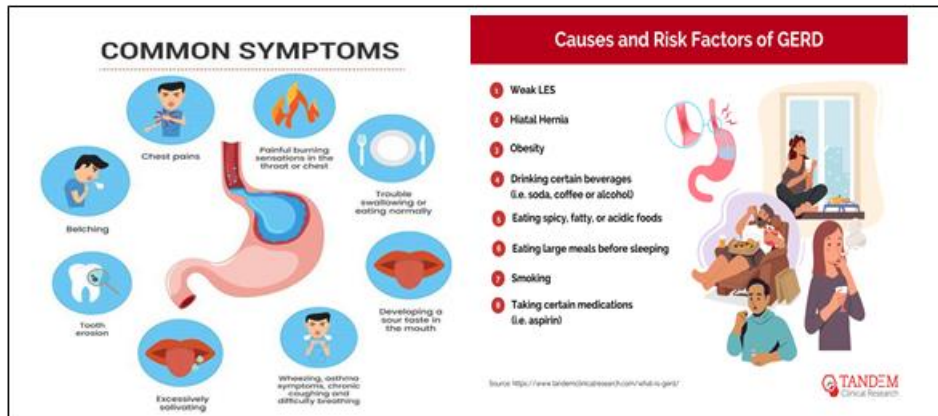


Fig. 3: Symptoms & Causes of GERD.

According to Unani scholars, it is caused by *Ghadha-i-Ghalizkham*, (foods that is partially cooked and hard to digest), disturbance in *Quwwat-i-Hadm*, stomach weakness, *Fudlat* (waste product), intake of spicy foods, rotten fruits, hard fibrous diets, alcoholism, indigestion gastric secretions, prolonged stress and strain. Many agents that reduced gastric acidity often have a tendency to induce secondary rise in acidity within a short time of administration. These include H2-receptor blockers, proton pump inhibitors and much antacid preparation. Rebound acid hyper secretion may contribute to high ulcer relapse rate after discontinuation of H2 receptor antagonists and secondary hyper gastrinemia may also lead to tolerance to prolonged course of H2 antagonists associated with decreased acid inhibition. The prevalence of GERD varies widely in the world and according to National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), 20% (approx.) of population of United States are suffering from GERD. Recent studies indicate that its prevalence in India ranges between 8-20%, which is comparable to prevalence of the GERD in west countries.

IV. Symptoms of Acid Reflux Headache

Not all gastric headaches are the same. Some people experience pain in their temples while others experience what feels like a tight band around their head. The pain may be dull or throbbing and located on one or both sides of the head. GERD and acid reflux are also known to trigger symptoms of sinusitis (inflammation of the sinuses). A sinus headache due to acid reflux may feel like:

- Dull pain around the eyes
- Tenderness or pain around the cheekbones
- A feeling of pressure in your head
- Head pain when you wake up in the morning or when bending over

Additionally, acid reflux headaches may occur alongside other symptoms, such as:

- Nausea
- Vomiting
- Constipation
- Pain or burning in the stomach
- Belching

- Bloating
- Feeling of excessive fullness after eating
- Migraine aura (i.e., flashes of light or other sensory disturbances)

V. Causes of Tabkheer-i-meda (GERD) Disease

Gastro esophageal reflux disease can be caused by the prolonged use of the following foods;

- Spicy and fast food
- Fried and heavy fat containing food
- Betel nut, Pan, Gutca, Snuff
- Alcoholic Drinks
- Chocolate
- Coffee, Tea, Cola
- Tomato, Orange Juice (high acidic contents)
- Peppermint, Onion, Garlic
- Hot in temperature and cold food simultaneously
- Over eating

Along with these foods the following risk factors are also involved in the development of the gastro esophageal reflux disease this has been elaborated in Figure.

- Self medication and excess medication like antidepressants, NSAIDs, Corticosteroids, Calcium Channel Blockers
- Obesity and excess of abdominal fats
- Age over 50 years
- Smoking
- Pregnancy
- Asthma

Gastro esophageal reflux disease may be developed through following basic ways;

- A. Prolonged contact of gastric juice with esophageal epithelium
- B. Unusual damage of esophageal epithelium with acidic contents
- C. Frequent use of anti-acids and overflow of the stomach

The lower esophageal sphincter remain relax in gastro esophageal reflux disease and the gastric material invade in the esophagus while the esophagus functions properly.

Hiatus hernia, an anatomical abnormality of stomach may develop gastro esophageal reflux disease. Normally the muscular sheet of diaphragm generates pressure to close lower esophageal sphincter. In case of hiatus hernia, the supporting pressure decreases or may be lost, such conditions provide ease to reflux. Hiatus hernia may be developed in any age but it is common in the age group of more than fifty years. The therapy for gastro esophageal reflux disease follows the continuous medication. When the medication stops the reflux relapse and its ratio goes up to 90%. medication along with lifestyle changes bring up the results more than three fourth of the patients. The patients that do not tolerate medicine and fed up with long term medication goes for surgery. Frequently used surgical procedure is called Laproscopic Nissen Fundoplication. The response rate is very encouraging in 5 year follow up i.e. 90% of the cases.

VI. Pathology Tabkheer-i-meda (GERD)

There may or may not be any pathology involved in the gastro esophageal reflux disease. The major pathology we are studying here in this study is *Helicobacter pylori* (*H. pylori*). The easiest route of induction of the *H. pylori* infection is;

- Oral to oral
- Fecal to oral

A. History Of *Helicobacter Pylori*

Helicobacter pylori is also known as *H. pylori*. It was firstly detected by the Bany Marshal and J. Robin Warren. They found an organism in the culture of the gastric biopsy tissues in 1982 and name it *Campylobacter pylori*. Its rate of infection, portal of exit and no animal reservoir has been found yet.

B. Mechanism of *Helicobacter Pylori*

H. pylori have highest ability of genetic diversity than other human pathogens. It is due to the genetic strain differences. So, its role in different type of stomach cancer is 89%. It is a bacteria that survives in the acidic environment of the stomach. It happens due to a specific quality that it utilizes uric acid and produces ammonia, which neutralizes the acidity and provides suitable environment for survival and reproduction around the bacterial cells. They colonize directly above the epithelial layer of the stomach and penetrate into it. Their growth rate is slower in the laboratory culture due to the micro-aerophilic conditions. Identification markers for *H. pylori* is directly from gastric biopsies, for the evaluation of the enzyme urease and culturing specimens on special media, serologically specific antibody against *H. pylori* test is used for identification. In a susceptible host, *H. pylori* determine chronic active gastritis that may lead, in turn, to duodenal and gastric ulcer disease, gastric cancer, and maltomas. *H. pylori* infection causes chronic active gastritis, which is characterized by a striking infiltrate of the gastric epithelium and the underlying lamina propria by neutrophils, T and B lymphocytes, macrophages, and mast cells. Mast cells,

usually responsible for the immune response balance, maybe important effectors cells in the pathogenesis of gastritis.

VIII. Pathogenesis of Tabkheer-i-meda (GERD)

Marshall *et al.* first of all cultured *Helicobacter pylori* in 1982 from gastric biopsy tissues and name it *Campylobacter pylori*. It survives in the highly acidic environment of the stomach because it develops ammonia around it from the uric acid that neutralizes the acidity around the bacterial cells and carried out the survival and reproduction by providing suitable environment. They colonize direct above the epithelial layer of the stomach and penetrate into it. During culture in laboratory their growth is slow because of the requirement of the microaerophilic conditions and an enriched medium. *H. pylori* have highest ability of genetic diversity than most of the other human pathogens because of its strain differences. So, its role is 89% indifferent types of the stomach cancers. No animal reservoir has been found yet.

H. pylori invade the body through food, fluids and contaminated utensils. Its Identification marker is directly from gastric biopsies for the evaluation of enzyme Urease and culturing specimens on special media. A sophisticated urea breath test is used to measure the quantity of the carbon dioxide developed in the stomach after oral presentation of urea. Serologically specific protein antibody test against *H. pylori* is used for identification. The final and the easiest approach that provides the accurate results is fecal antigen test. The therapy for gastro esophageal reflux disease follows the continuous medication. When the medication stops the reflux relapse and its ratio goes up to 90%. Medication along with lifestyle changes bring up the results more than three fourth of the patients. The patients that do not tolerate medicine and fed up with long term medication goes for surgery. Frequently used surgical procedure is called Laproscopic Nissen Fundoplication that shows very encouraging response rate in 5 year follow up i.e. 90%.

Commonly the reflux may be found in any age, but it affects mostly the age group of 20 to 50 years. Male and females are equally victimized, and both are hospitalized. But in men the endoscopic findings of esophageal damage are two to three fold more than females of China and West. Esophageal reflux has basic symptoms of epigastric pain that starts after one hour eating and may last up to two hours, aggravates with the spicy food, citrus food, tomato, onion and alcohol etc. It starts with heartburn, refers to epigastric pain along with regurgitation. If it happens during sleep the symptoms of hyper salivation and bitter taste are also found.

IX. Management of GRED

A. Chewing Gum

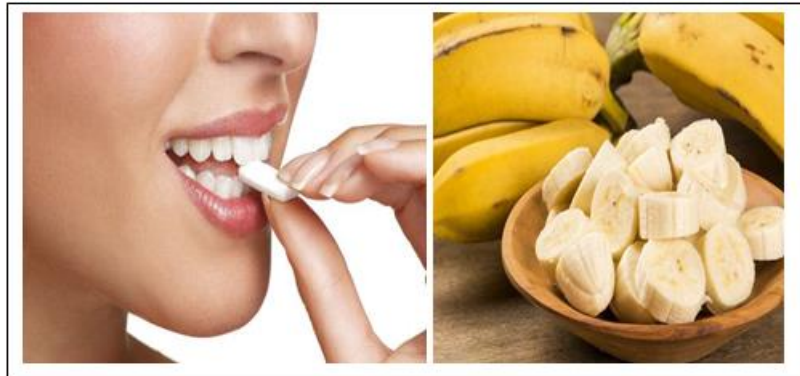


Fig. 4: Chewing Gum and Banana used in GERD.

Chewing gum stimulates the flow of saliva, which helps keep the acid levels in your stomach down. Chewing gum also makes the saliva more alkaline, thus helping balance the pH level. Additionally, it can soothe the oesophagus and reduce inflammation. Chew on gum for 10 minutes after a meal as one of the home remedies for heartburn. Go for a sugar-free gum that is not artificially flavored.

of a calorie-laden dessert. On the plus side, bananas are packed with dietary fiber which is extremely beneficial for the gut as it boosts digestion. The potassium content in this fruit helps increase the production of mucous in the stomach, preventing the excess acid formation and also fighting the negative effects of excess stomach acid. Honeydew melon and almonds are other alkaline foods you can snack on between or post meals.

B. Ripe Banana

End your meal on a sweet note with a ripe banana instead

C. Low Carb Diets



Fig. 5: Use Low carb diet in GERD.

The human body lacks the enzymes needed to digest certain carbohydrates. As per studies, a diet high in carbohydrates increases acid reflux time and causes more reflux symptoms, while a low carbohydrate diet has the opposite effect. Here are some low-carb foods to add to your diet for bile reflux treatment at home

- Green leafy vegetables, cauliflower, broccoli
- Nuts and seeds, nut butter
- Fresh fruits like apples and berries
- Unsweetened milk, yoghurt, and such dairy products
- Eggs
- Oils such as coconut oil and olive oil

prevent or reduce acid reflux, also avoid eating foods that trigger the symptoms.

- Chocolate
- Spicy foods and ingredients like black pepper, garlic, raw onions
- Tomatoes
- Citrus fruits and products
- Peppermint
- Coffee and caffeinated drinks
- Alcohol

D. Avoid Trigger foods.

While you upgrade your diet by adding foods that help.

E. Elevate the Head.**Fig. 6: Elevated head and food time control the GERD.**

Lying down, especially after a meal can cause food and stomach acid to come back up the oesophagus. Sleeping in an upright position such that the oesophagus is set over the stomach prevents acid reflux. Also, remember to sleep on your left side as sleeping on the right can cause stomach acids to enter the oesophagus. Elevate your head and upper body with the help of a wedge pillow or extra pillows, install bed risers or get an adjustable bed.

F. Eat Early Dinner

Finishing your meals a couple of hours before your bedtime allows your stomach to carry out digestive processes and empty itself, thus preventing acid reflux symptoms. Additionally, chew your food properly before swallowing to make it easier for your stomach to break it down. This not only helps you avoid acidity and indigestion but also helps your body absorb nutrients properly.

G. Maintain body weight**Fig. 7: Maintain body weight and loose cloths prevent the GERD.**

Occasional acidity is normal and can happen to anyone. However, being overweight is one of the common causes of GERD. That's because excess body weight increases abdominal pressure, making it more likely for stomach acid to backflow.

H. Loose fitting clothing

As mentioned, abdominal pressure can aggravate acid reflux, so be sure to wear clothing that fits you comfortably. Avoid wearing tight-fitting clothes that make it difficult for you to sit through a meal. Loose clothing allows food to have an easy passage without restricting the functioning of the stomach.

I. Reduce stress

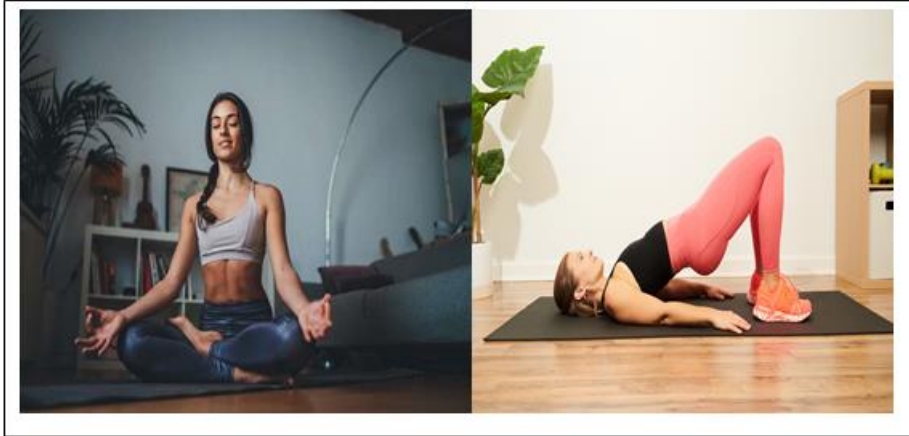


Fig. 8: Stress reduced the GERD.

Yes, stress can also cause acid reflux symptoms! Stress depletes substances called prostaglandins, which protect the stomach lining from the effects of acid, thus increasing your discomfort.

J. Apple Cider Vinegar

Apple Cider Vinegar is a renowned home remedy for various health concerns including GERD and acid reflux. Despite being acidic, it helps balance the body's pH levels. When the stomach doesn't produce enough acid, the lower esophageal sphincter tends to loosen up, causing acid reflux. Apple cider vinegar increases your stomach's acid content and thus helps in digesting food properly. This regular practice can help reduce the frequency of acid reflux and the intensity of heartburn. To use it safely and effectively it's best to consult a naturopathic doctor.

K. Ginger

Ginger has been prized for its medicinal properties for centuries. It is particularly effective in mitigating digestive issues, including GERD and acid reflux. Its anti-inflammatory properties help soothe the irritated lining of the esophagus, providing relief from the discomfort associated with acid reflux. Additionally, ginger can aid digestion, reducing the likelihood of acid reflux occurring after meals. There are several ways to incorporate ginger into your diet. You can include fresh ginger in your meals, chew on a small piece of raw ginger, or prepare ginger tea. To make ginger tea, slice a few pieces of fresh ginger root and steep in boiling water for about 10 minutes. Strain and sip slowly. This tea can be consumed 20 minutes before meals for optimal digestion and reflux reduction.

L. Aloe Vera Juice

Aloe Vera is well-known for its healing and soothing properties, and these effects are not limited to skin issues. Aloe Vera juice can also be an effective home remedy for GERD and acid reflux. When consumed, it soothes the irritated esophagus and stomach lining, reducing the burning sensation caused by stomach acid reflux. For this purpose, you can drink half a cup of aloe

vera juice, ideally organic and free from additives, before meals. It's important to note that aloe vera juice can have a laxative effect, so opt for a brand that has the laxative component, known as aloin, removed to avoid this side effect.

CONCLUSION

GERD is a major digestive health problem and affect 12% of Brazilian people. The aim and study of this review article is fundamental for the diagnosis of GERD, with special analysis of the typical and atypical symptoms (duration, intensity, frequency, triggering and relief factors, evolution and impact on the life quality). High digestive endoscopy and esophageal pH-metry are the most sensitive diagnostic methods. The clinical treatment is useful in controlling the symptoms; however, the great problem is keeping the patients asymptomatic over time. Surgical treatment is indicated for patients who required continued drug use, intolerant to the drugs and with complicated forms of GERD.

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